

REMARKS

Claims 1-4 are pending in the application.

Claims 1-4 have been amended in order to more particularly point out, and distinctly claim the subject matter to which the Applicants regard as their invention. It is believed that this Amendment is fully responsive to the Office Action dated **December 12, 2002**.

Claim Rejections under 35 USC §103

Claims 1-4 are rejected under 35 USC §103(a) as being unpatentable over Latos et al. (U.S. Patent No. 5,512,811) in view of Bogel (U.S. Patent No. 4,384,213).

Latos et al. describes an electrical power starter/generator (10) that converts electrical energy from a DC electric power source, such as a battery, to mechanical energy that is utilized to start an auxiliary power unit, such as a turbine engine in an aircraft. A start mode controller (50) is used to control the rate of generation of rotational mechanical energy delivered to the turbine engine. An auxiliary power unit starter/generator relay (94) is commanded to close via a line (96), connecting the aircraft battery (12) to the electric power starter/generator (10), thereby engaging the start sequence. The auxiliary power unit starter/generator relay (94) is commanded to open when the auxiliary power unit engine (82) reaches the cutout speed, thereby completing the start sequence. A control permanent magnet generator (36) produces polyphase AC electric power when driven by the turbine engine via shaft (14). The electric power starter/generator (10) has an internal power supply (130).

Bogel describes an automatic control transfer device for selectively switching between two loads (28 and 30) utilizing two main breakers (52-1 and 52-2). This device includes a means for sensing electric conditions on both the sources of electrical power. The device will switch between one of the two loads as needed.

The present invention is a grid type engine generator apparatus that can detect an error or fault of the generator using a simple construction. In an event of grid connection , it is required to observe conditions of the grid constantly according with a guideline which includes several strict requirements. An excessive burden cost is caused by the observation of the grid. Therefore, the present invention's purpose is an apparatus that reduces this burden for observation of the grid.

Neither Latos et al. nor Bogel, taken singly or in combination, suggests or describes the following:

1. A means for starting an interconnection with the system source when a direct current voltage rises to a first predetermined level.
2. Canceling the interconnection when the direct current voltage drops below a second predetermined level.
3. Restarting the interconnection when the direct current returns to the first predetermined level.
4. Detecting a fault in the power generator when the current voltage drops below the second predetermined level after restarting the connection.

Based upon the foregoing analysis, Applicants respectfully traverse the Examiner's grounds of rejection.

Specifically, claim 1 patentably distinguishes over the prior art relied upon, by reciting,

"A grid-connected type engine generator apparatus for rectifying and converting an alternating output of a generator, which has multi-phase windings and is driven by an engine, and converting the rectified output by an inverter into an alternating current at the frequency of grid and the alternating current is connected with the comprising: a means for starting the connection with the grid when the direct current voltage at inside of the inverter rises up to first predetermined level after the start up of the engine and then increasing the output of the inverter; a means for canceling the connection when the direct current voltage drops down to below second predetermined level, and for re-starting the connection with the grid when the direct current voltage returns back to the first predetermined level; and a fault detecting means for judging that the power generator has a fault when the direct current voltage drops down to below the second predetermined level after the re-starting of the connection." (Emphasis Added)

Therefore, withdrawal of the rejection of Claims 1-4 under 35 USC §103(a) as being unpatentable over Latos et al. (U.S. Patent No. 5,512,811) in view of Bogel (U.S. Patent No. 4,384,213) is respectfully requested.

Conclusion

In view of the aforementioned amendments and accompanying remarks, claims 1-4, as amended, are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicants undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "**Version with markings to show changes made.**"

In the event that this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,
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PATENT TRADEMARK OFFICE

Enclosures: Version with markings to show changes made

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IN THE CLAIMS:

Please amend claims 1-4 as follows:

1. (Amended) [An] A grid-connected type engine generator apparatus for rectifying and converting an alternating output of a generator, which has multi-phase windings and is driven by an engine, and converting the rectified output by an inverter into an alternating current at the frequency of [a power system] grid and the alternating current is [inter]connected with the [source of said power system] grid, comprising:

a means for starting the [inter]connection with the [system source] grid when [a] the direct current voltage [rectified] at inside of the inverter rises up to first predetermined level after the start up of the engine and then increasing the output of the inverter;

a means for canceling the [inter]connection when the direct current voltage drops down to below second predetermined level, and for re-starting the [inter]connection with the [system source] grid when the direct current voltage returns back to the first predetermined level; and

a fault detecting means for judging that the power generator has a fault when the direct current voltage drops down to below the second predetermined level after the re-starting of the [inter]connection.

2. (Amended) An engine generator apparatus according to claim 1, wherein the output of the inverter is gradually increased at the start of the [inter]connection of the apparatus with the [power system] grid.

3. (Amended) An engine generator apparatus according to claim 1, comprising a means where a generator fault signal is outputted, when the canceling and the re-starting of the [inter]connection with the [power system] grid and the direct current voltage drops down to below the second predetermined level is repeated.

4. (Amended) An engine generator apparatus according to claim 2, comprising a means where a generator fault signal is outputted, when the canceling and the re-starting of the [inter]connection with the [power system] grid and the direct current voltage drops down to below the second predetermined level is repeated.